Kulvir Jaydeep Chavda

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EDUCATION, SKILLS, & COURSES

University of Illinois at Urbana-Champaign - UIUC, *Junior*   *Graduation: May 2026*
B.S in Aerospace Engineering with a Minor in Computer Science   ***Cumulative GPA: 3.8***

- **Skills:** Java, Python, C++, Arduino C++, Siemens NX, Fusion 360, CATIA, SolidWorks, Eagle EDA, Proteus V8, BurnSim, CFD (Beginner), 3D Printing, Soldering, MS Office. (Programming: Intermediate, Design: High Intermediate).
- **Taken/In-Progress:** Incompressible Flow, Mechs of Aerospace Structures, Aero Dynamical Systems, Data Structures, Aero Flight Mechanics, Discrete Structures, Theoretical & Applied Dynamics, Calculus & Linera Algebra, Full Intro CS.
- **By Summer 2025:** Compressible Flow, Applied Aero Structures, Aero Control Systems, Aero Numerical Methods.
- **Elective:** ENG 491 (NanoSat Design Build 1) – Designing a Zero-G Chemical-Electrospray Propellant Dual Feed System.

WORK EXPERIENCE & ENGINEERING PROJECTS

Aerospace Engineering Intern – Summer 2024   *June, 2024 – August, 2024*
Adani Defence & Aerospace, Ahmedabad, India

- Conducted foundation research and design for short-range missile systems targeting drone countermeasures.
- Analyzed project specification to create/present a detailed 2-month action plan successfully to go from concept-to-design.
- Conceptualized 3 engineering design variants for senior engineers within 2 weeks to kickstart project development.
- Designed vehicle trajectory by hand and modelled it using python to gain insight on needed propellant calculations.
- Calculated potential propulsive & aerodynamic forces – by hand – on vehicle and selected structure materials accordingly.
- Created 6 weekly design update presentations to verify technical integrity and reduce development time by 20-50%.
- Wrote a final 40-page engineering design report outlining math, references, CAD designs, blueprints, and future steps.

Aerospace Educational Development & Outreach   *April, 2023 – May, 2024*
Department of Aerospace Engineering – University of Illinois, Urbana Champaign

- Worked under the Aerospace Department's NDEP (National Defense Education Program) Department of Defense Grant.
- Taught 15+ STEM teachers & students in rocket science, guiding them through building, flying, and analyzing rockets.
- Built, optimized, and troubleshooted 150+ short range rockets & avionics to collect flight data & analyze trends.
- Identified and implemented course improvements through detailed surveys that improved course structure & effectiveness.

Head of Technical Projects   *January, 2023 – Present*
Minorities in Aerospace (MAero) – University of Illinois, Urbana Champaign

- Planning, advising, and recruiting engineering students for any technical initiative MAero takes on as an organization.
- Leading 3 technical project teams to design & build a High-Altitude Rocket, RC Airplane, and 3D-Printed Modular Drone.
- Spearheading brainstorming sessions to create design options, plan budget, and technical parts lists for projects.
- Presenting engineering progress and future goals to potential sponsors and advisors to gain monetary & advisory support.
- Secured $2,500 of funding from Blue Origin in my first semester & organized a research event with 5+ professors.

Project Systems Engineer   *September, 2023 – November, 2023*
Department of Defense S.T.E.M. Vertically Landed Rocket Challenge

- Built a lander that, under free fall, used a solid rocket motor to reorient and land itself from an altitude of 30m.
- Utilized UIUC's VLR parts resource & online avionics programming library to optimize our model & simulate landings.
- Achieved successful burn and recorded avionics data from an unsuccessful landing to improve design in the future.

RESEARCH & WRITING

Researcher & First Author   *May, 2023 – April, 2024*
Title: Using the Drag Equation and Euler's Method in Python to Predict Model Rocket Flight Trajectories

- Utilized Rocket Flight Data (24 flights), Motor Thrust Tests, and Python to write algorithm that predicts rocket trajectories.
- Conducted 25+ solid rocket-motor thrust tests to create accurate theoretical thrust curves to plug into python algorithms.
- Designed algorithm structure and wrote python application with a GUI (Graphical User Interface) to take user input, and subsequently output graphs depicting with-drag/without-drag altitude vs time & drag-force vs time for the model rocket.
- Publication awarded 3rd place at the AIAA Region III Conference in April, 2024 (https://doi.org/10.2514/6.2024-84150).